

Title (en)

Carbon fiber types for lithium secondary cell anode material

Title (de)

Fasertypen aus Kohlenstoff zur Verwendung als Anodenmaterial in Lithium-Sekundärzellen

Title (fr)

Matériau à base de fibres de carbone pour anodes de cellules secondaires au lithium

Publication

EP 1434291 A3 20040721 (EN)

Application

EP 04003081 A 19970627

Priority

- EP 97928508 A 19970627
- JP 18842196 A 19960628

Abstract (en)

[origin: US6277522B1] Carbon fiber having cross sectional shape which satisfies area replenishment rate of 0.8 or more is used as anode material for non-aqueous electrolyte secondary battery. Alternatively, since value of fractal dimension of cross section high order structure of the random radial type carbon fiber can be utilized as material parameter for evaluating the cross sectional structure, carbon fiber in which the value of the fractal dimension is caused to fall within the range from 1.1 to 1.8 and the crystallinity has been controlled such that it falls within reasonable range is used as anode material for non-aqueous electrolyte secondary battery. Further, carbon fiber having cross section high order structure such that the central portion is radial type structure and the surface layer portion is random radial type structure is used as anode material for non-aqueous electrolyte secondary battery. Furthermore, it is also effective to use carbon fiber having notch structure at the cross section. In addition, graphitized carbon fiber having cross sectional portions different in the crystal structure at predetermined periods in the fiber length direction is made up. By crushing the graphitized carbon fiber thus obtained, carbon fiber crushed powder having less unevenness and predetermined aspect ratio can be easily made up.

IPC 1-7

H01M 4/58; D01F 11/12

IPC 8 full level

H01M 4/587 (2010.01); **D01F 9/12** (2006.01); **D01F 9/15** (2006.01); **D01F 11/12** (2006.01); **H01M 4/133** (2010.01); **H01M 4/38** (2006.01); **H01M 10/0525** (2010.01); **H01M 10/0566** (2010.01); **H01M 4/02** (2006.01); **H01M 4/04** (2006.01); **H01M 6/16** (2006.01)

CPC (source: EP KR US)

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Citation (search report)

- [Y] EP 0675555 A1 19951004 - TOSHIBA KK [JP], et al
- [XYA] IMANISHI N ET AL: "THE STRUCTURE AND CHARGE-DISCHARGE CHARACTERISTICS OF MESOPHAGE- PITCH BASED CARBONS", PROCEEDINGS OF THE SYMPOSIUM ON HIGH POWER, AMBIENT TEMPERATURE LITHIUM BATTERIES. PHOENIX, OCT. 13 - 17, 1991, PROCEEDINGS OF THE ANNUAL MEETING OF THE ELECTROCHEMICAL SOCIETY, PENNINGTON, ES, US, vol. MEETING 180, 13 October 1991 (1991-10-13), pages 80 - 89, XP000453547

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